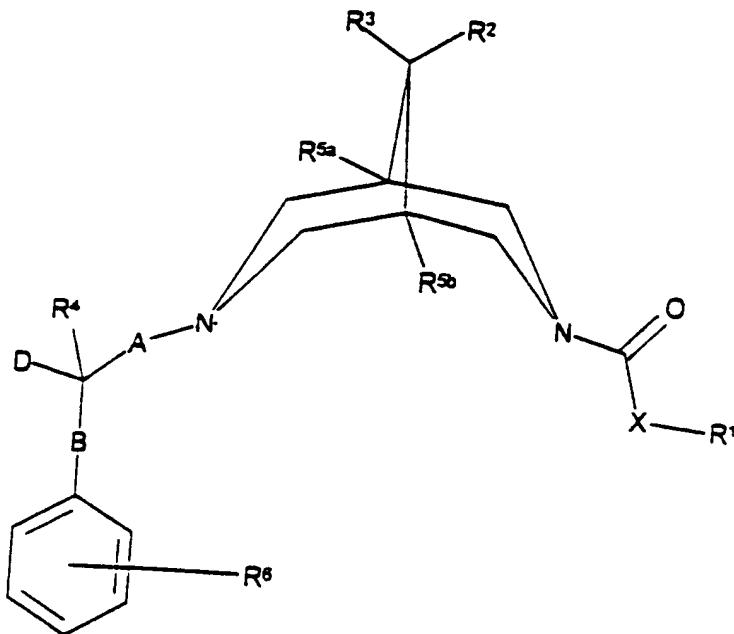


AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (currently amended). A compound of formula I,



wherein

R¹ represents C₁₋₁₂ alkyl, C₃₋₁₂ cycloalkyl, -(CH₂)_a-aryl, or (CH₂)_aHet¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₃₋₄ cycloalkyl and/or C₁₋₄ alkoxy or C₃₋₄ cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

R² and R³ independently represent H, C₁₋₄ alkyl (optionally substituted with one or more nitro or cyano groups), C₃₋₄ cycloalkyl, OR⁷, N(R^{7a})R^{7b}, OC(O)R⁸ or together form -O-(CH₂)₂-O-, -(CH₂)₃-, -(CH₂)₄- or -(CH₂)₅-;

R⁷ and R⁸ independently represent H, C₁₋₆ alkyl, or -(CH₂)_b-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₁₋₄ alkoxy, and/or C₃₋₄ cycloalkyl);

R^{7a} and R^{7b} independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

b represents 0, 1, 2, 3 or 4;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH₂)_cN(R¹⁰)(R¹¹);

c represents 0, 1, 2, 3 or 4;

R¹⁰ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, -(CH₂)_d-aryl, -C(NH)NH₂, -S(O)₂R¹³, -[C(O)]_eN(R¹⁴)(R¹⁵), -C(O)R¹⁶ or -C(O)OR¹⁷;

e represents 1 or 2;

R¹¹ represents H, C₁₋₆ alkyl, -C(O)R¹⁸ or -(CH₂)_f-aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹⁴, R¹⁵, R¹⁶, R¹⁷ and R¹⁸ independently represent H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹³ represents C₁₋₆ alkyl, C₃₋₆ cycloalkyl, aryl or -(CH₂)_h-aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

R⁶ represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C₁₋₆ alkoxy, C₃₋₆ cycloalkyl, C₃₋₆ cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

R¹⁹ and R²⁰ independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R^{18a}, R²¹ and R²² independently represent C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

A represents a single bond, C₁₋₆ alkylene, -N(R²³)(CH₂)_j-, -O(CH₂)_j- or -(CH₂)_iC(H)(OR²³)(CH₂)_k- (in which latter three groups, the -(CH₂)_j- group is attached to the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C₁₋₄ alkylene, -(CH₂)_mN(R²⁴)-, (CH₂)_mS(O)_n-, -(CH₂)_mO- (in which three latter groups, the -(CH₂)_m- group is attached to the carbon

atom bearing D and R⁴), -C(O)N(R²⁴)- (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), N(R²⁴)C(O)O(CH₂)_m- or -N(R²⁴)(CH₂)_m- (in which latter two groups, the N(R²⁴) group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4;

n represents 0, 1 or 2;

R²³ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl or C(O)R²⁵

R²⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R²⁵ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het³ or -(CH₂)_p-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

or a pharmaceutically acceptable salt, N-oxide or C₁₋₄ alkyl quaternary

ammonium salt derivative thereof;

wherein alkyl groups that R¹, R², R³, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups that R⁶ may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or cycloalkyl or cycloalkyl with

carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part cycloalkyl/acyclic or cycloalkoxy/acyclic, with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may , when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and $-(CH_2)-$ containing groups that R¹, R² and R³ (together), R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and $-(CH_2)-$ containing chains may , when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen;

provided that:

(a) when D represents either H or -OH, and R^{5a} and R^{5b} both represent H, then at least one of R² and R³ represents OR⁷, OC(O)R⁸ or C₁₋₄ alkyl, which alkyl group is substituted with one or more nitro or cyano groups; and

(b) when D represents -OH or $-(CH_2)_cN(R^{10})R^{11}$ in which c represents 0, then:-

(i) A does not represent $-N(R^{23})(CH_2)_j-$, $-O(CH_2)_j-$ or $-CH_2)_jC(H)(OR^{23})(CH_2)_k-$

(in which k is 0); and/or

(ii) m does not represent 0 when B represents $-(CH_2)_mN(R^{24})-$, $-(CH_2)_mS(O)_n-$ or $-(CH_2)_mO-$.

2 (previously presented). A compound as claimed in Claim 1, wherein R¹ represents optionally substituted -(CH₂)_a-phenyl, in which a is 0, 1, 2 or 3, or optionally substituted, optionally unsaturated, linear, branched C₁₋₁₈ alkyl or C₃₋₁₈ cycloalkyl (which C₁₋₁₈ alkyl or C₃₋₁₈ cycloalkyl group may also be interrupted by an oxygen atom).

3 (previously presented). A compound as claimed in Claim 1, wherein R² represents H, OR⁷, -CH₂NO₂ or -OC(O)R⁸ or together with R³ -O-(CH₂)₂-O-.

4 (previously presented). A compound as claimed in Claim 1, wherein R³ represents H, OR⁷, C₁₋₄ alkyl or together with R² represents -O-(CH₂)₂-O-.

5 (previously presented). A compound as claimed in Claim 1, wherein R⁴ represents H or C₁₋₂ alkyl.

6 (previously presented). A compound as claimed in Claim 1, wherein R^{5a} and R^{5b} either both represent H or both represent methyl.

7 (previously presented). A compound as claimed in Claim 1, wherein R⁶ represents one or more substituents selected from C₁₋₆ alkyl, cyano, nitro, amino or C(O)N(H)R¹⁹ or N(H)S(O)₂R²¹.

8 (previously presented). A compound as claimed in Claim 1, wherein X represents O.

9 (previously presented). A compound as claimed in Claim 1, wherein A represents a single bond or linear, or branched, C₁₋₄ alkylene (which group is also optionally interrupted by O).

10 (previously presented). A compound as claimed in Claim 1, wherein B represents a single bond, C₁₋₄ alkylene, -(CH₂)_mO- or -(CH₂)_mN(R²⁴)- (in which latter two cases m is 1, 2 or 3).

11 (previously presented). A compound as claimed in Claim 1, wherein when D represents -(CH₂)_cN(R¹⁰)(R¹¹), c represents 0, 1 or 2.

12 (previously presented). A compound as claimed in Claim 1, wherein when D represents -(CH₂)_cN(R¹⁰)(R¹¹), R¹⁰ represents H, C₁₋₄ alkyl, -C(O)R¹⁶ (in which R¹⁶ is H, C₁₋₃ alkyl or Het²), -C(O)OR¹⁷ (in which R¹⁷ is C₁₋₅ alkyl, phenyl or C₁₋₃ alkylphenyl), -C(NH)NH₂ or [C(O)]_eN(H)R₁₅ (in which R₁₅ is H or C₁₋₃ alkyl).

13 (previously presented). A compound as claimed in Claim 1, wherein when D represents -(CH)_cN(R¹⁰)(R¹¹), R¹¹ represents H.

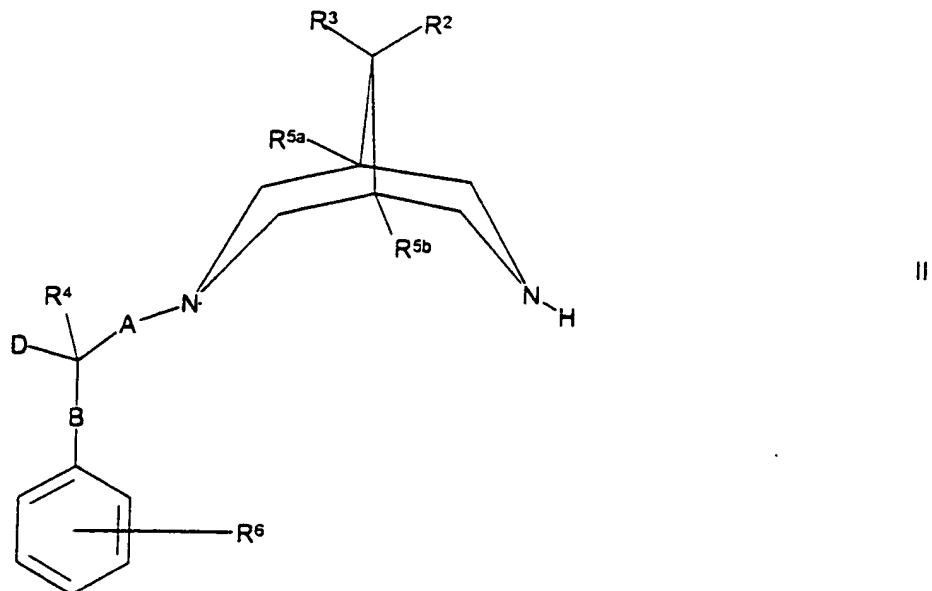
14 (previously presented). A pharmaceutical formulation including a compound as defined in Claim 1 in admixture with a pharmaceutically-acceptable adjuvant, diluent or carrier.

15-19 (cancelled).

20 (previously presented). A method of prophylaxis or treatment of an arrhythmia which method comprises administration of a therapeutically effective amount of a compound as defined in Claim 1 to a person in need thereof.

21 (previously presented) A process for the preparation of a compound of formula I as defined in Claim 1 which comprises:

(a) reaction of a compound of formula II,



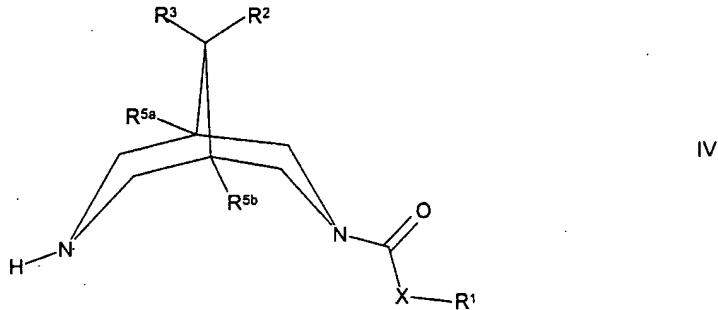
wherein R², R³, R⁴, R^{5a}, R^{5b}, R⁶, A, B and D are as defined in Claim 1 with a compound of formula III,

$R^1XC(O)L^1$

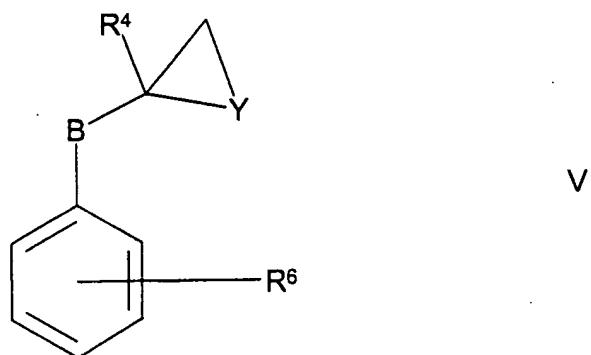
III

wherein L^1 represents a leaving group and R' and X are as defined in Claim 1;

(b) for compounds of formula I in which A represents CH_2 and D represents $-OH$ or $N(R^{10})H$, reaction of a compound of formula IV,

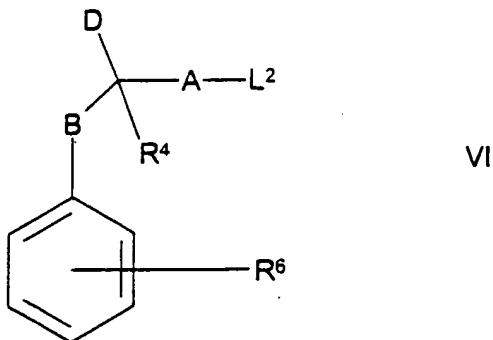


wherein R' , R^2 , R^3 , R^{5a} , R^{5b} and X are as defined in Claim 1, with a compound of formula V,



wherein Y represents O or $N(R^{10})$ and R^4 , R^6 , R^{10} and B are as defined in Claim 1;

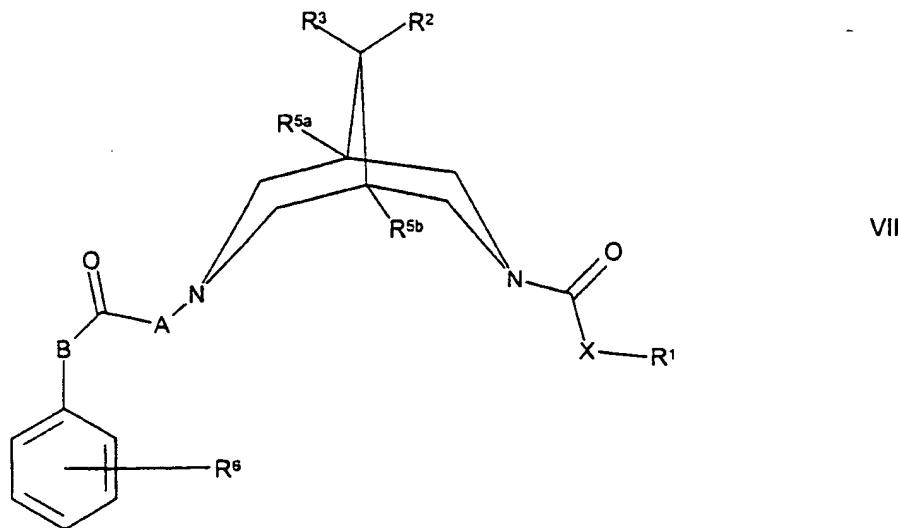
(c) reaction of a compound of formula IV, as defined above, with a compound of formula VI,



wherein L² represents a leaving group and R⁴, R⁶, A, B and D are as defined in

Claim 1;

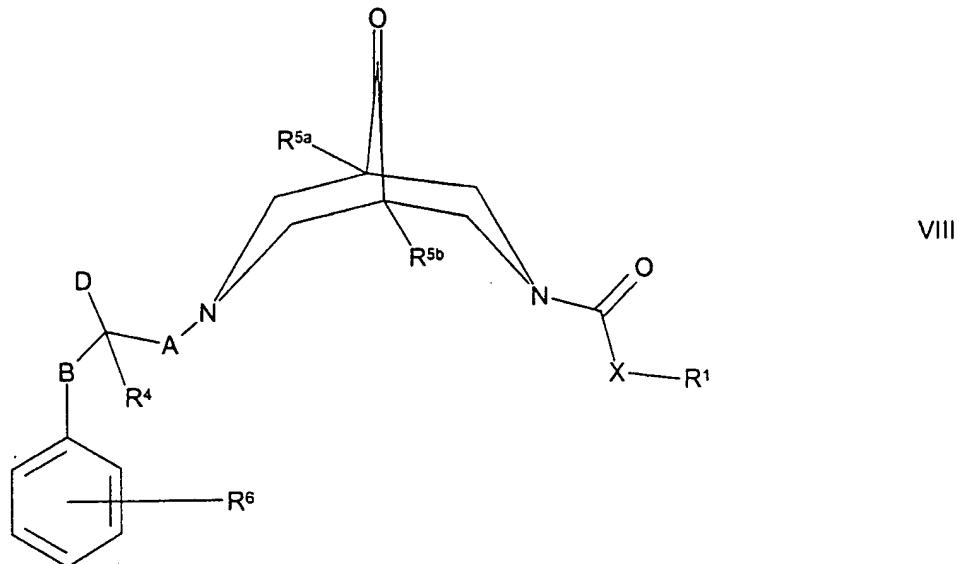
(d) for compounds of formula I in which D represents H or OH and R⁴ represents H, reduction of a compound of formula VII,



wherein R', R², R³, R^{5a}, R^{5b}, R⁶, A, B and X are as defined in Claim 1;

(e) for compounds of formula I in which one of R² and R³ represents H or OH and

the other represents H, reduction of a corresponding compound of formula VIII,



wherein R¹, R⁴, R^{5a}, R^{5b}, R⁶, A, B, D and X are as defined in Claim 1;

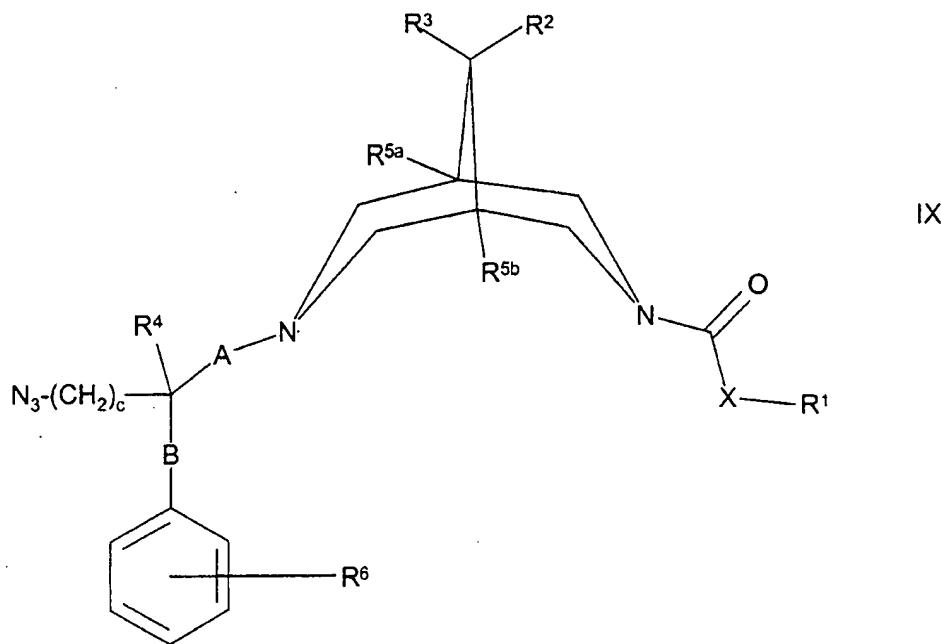
(f) for compounds of formula I in which R² and/or R³ represents OC(O)R⁸ and R⁸ is as defined in Claim 1, coupling of a corresponding compound of formula I in which R² and/or R³ (as appropriate) represents OH and a compound of formula VIIA,



VIIIA

wherein R⁸ is as defined in Claim 1;

(g) for compounds of formula I in which D represents -(CH₂)_cNH₂, reduction of a corresponding compound of formula IX,



wherein c, R¹, R², R³, R⁴, R^{5a}, R^{5b}, R⁶, A, B and X are as defined in Claim 1;

(h) for compounds of formula I in which D represents -N(R¹¹)C(O)NH(R¹⁵), in which R¹¹ and R¹⁵ are as defined in Claim 1 except that R¹¹ does not represent C(O)R¹⁸, reaction of a corresponding compound of formula I in which D represents -N(R¹¹)H, in which R¹¹ is as defined in Claim 1 except that it does not represent C(O)R¹⁸ in which R¹⁸ is as defined in Claim 1, with a compound of formula X,



wherein R¹⁵ is as defined in Claim 1;

(i) for compounds of formula I in which D represents -N(H)[C(O)]₂NH₂, reaction of a corresponding compound of formula I in which D represents -NH₂ with oxalic acid diamide;

(j) for compounds of formula I in which D represents -N(R¹¹)C(O)R¹⁶, in which R¹¹ and R¹⁶ are as defined in Claim 1 except that R¹¹ does not represent C(O)R¹⁸,

reaction of a corresponding compound of formula I in which D represents -N(R¹¹)H, in which R¹¹ is as defined in Claim 1 except that it does not represent C(O)R¹⁸ in which R¹⁸ is as defined in Claim 1, with a compound of formula XI,



wherein R_x represents a suitable leaving group and R¹⁶ is as defined in Claim 1;

(k) for compounds of formula I in which D represents -N(H)R¹⁰ and R¹⁰ is as defined in Claim 1 except that it does not represent H or -C(NH)NH₂, reaction of a corresponding compound of formula I wherein D represents -NH₂ with a compound of formula XIA,



wherein R^{10a} represents R¹⁰ as defined in Claim 1 except that it does not represent H or —C(NH)NH₂ and L¹ is as defined above;

(l) for compounds of formula I which are bispidine-nitrogen N-oxide derivatives, oxidation of the corresponding bispidine nitrogen of a corresponding compound of formula I;

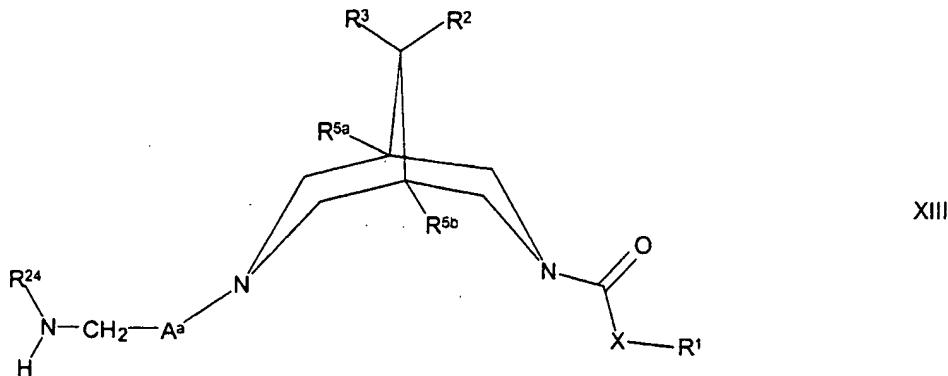
(m) for compounds of formula I which are C₁₋₄ alkyl quaternary ammonium salt derivatives, in which the alkyl group is attached to a bispidine nitrogen, reaction, at the bispidine nitrogen, of a corresponding compound of formula I with a compound of formula XII,



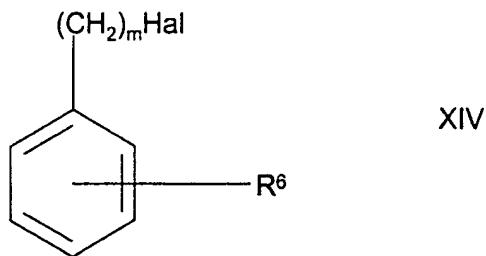
wherein R^a represents C₁₋₄ alkyl and Hal represents Cl, Br or I;

(n) for compounds of formula I in which D and R⁴ both represent H, A represents C₁₋₆ alkylene, B represents N(R²⁴)(CH₂)_m and m and R²⁴ are as defined in Claim 1,

reaction of a compound of formula XIII,



wherein A^a represents C₁₋₆ alkylene and R¹, R², R³, R^{5a}, R^{5b}, R²⁴ and X are as defined in Claim 1 with a compound of formula XIV,

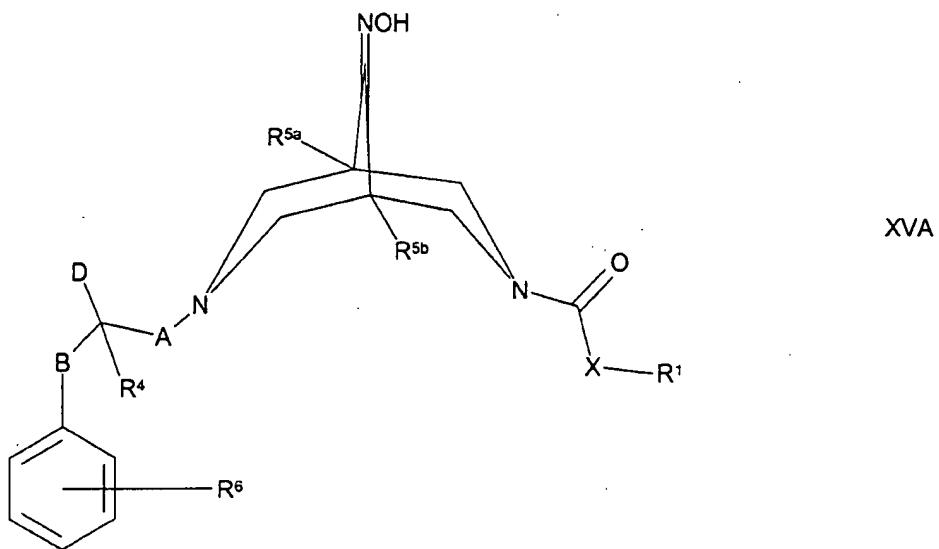


wherein R⁶, m are as defined in Claim 1 and Hal is as defined above;
(o) reaction of a compound of formula II, as defined above, with a compound of formula XV,



wherein R¹ and X are as defined in Claim 1, in the presence of 1,1'-carbonyldiimidazole;

(p) for compounds of formula I in which one of R² and R³ represents —NH₂ and the other represents H, reduction of a compound of formula XVA,



wherein R¹, R⁴, R^{5a}, R^{5b}, R⁶, A, B, D and X are as defined in Claim 1; or

(q) for compounds of formula I in which one or both of R² and R³ represent -

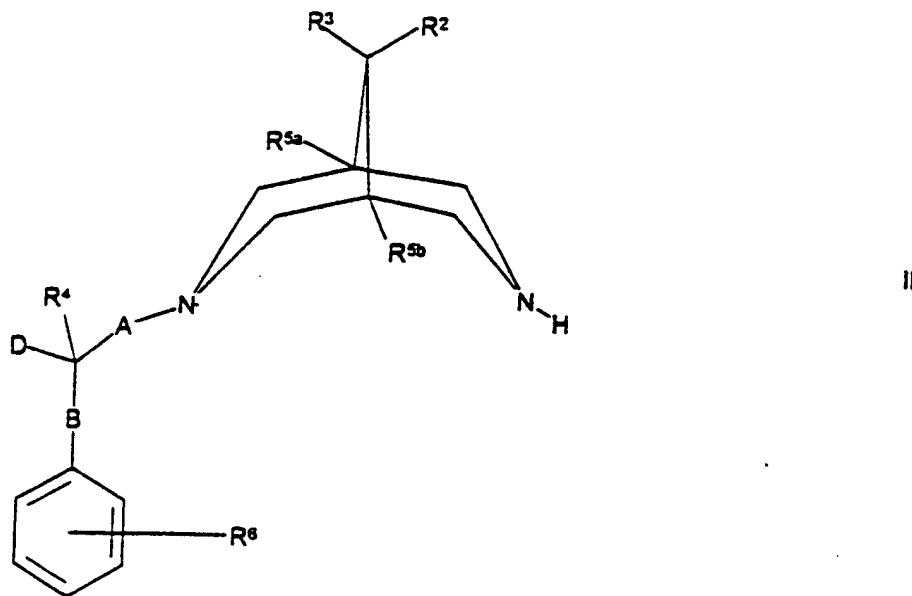
N(R^{7a})R^{7b} in which one or both of R^{7a} and R^{7b} represents C₁₋₆ alkyl, alkylation of a corresponding compound of formula I in which R² and/or R³ represent -N(R^{7a})R^{7b} (as appropriate) in which R^{7a} and/or R^{7b} (as appropriate) represent H, using a compound of formula XXIB,



XXIB

wherein R^{7c} represents C₁₋₆ alkyl and L¹ is as defined above.

22 (previously presented). A compound of formula II



wherein R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

R^2 and R^3 independently represent H, C₁₋₄ alkyl (optionally substituted with one or more nitro or cyano groups), C₃₋₄ cycloalkyl, OR⁷, N(R^{7a}) R^{7b} , OC(O)R⁸ or together form -O-(CH₂)₂-O-, -(CH₂)₃-, -(CH₂)₄- or -(CH₂)₅-;

R^7 and R^8 independently represent H, C₁₋₆ alkyl, or -(CH₂)_b-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₁₋₄ alkoxy, and/or C₃₋₄ cycloalkyl);

R^{7a} and R^{7b} independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

b represents 0, 1, 2, 3 or 4;

R^4 represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH₂)_cN(R^{10})(R^{11});

c represents 0, 1, 2, 3 or 4;

R^{10} represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, -(CH₂)_d-aryl, -C(NH)NH₂, -S(O)₂R¹³, -[C(O)]_eN(R^{14})(R^{15}), -C(O)R¹⁶ or -C(O)OR¹⁷;

e represents 1 or 2;

R¹¹ represents H, C₁₋₆ alkyl, -C(O)R¹⁸ or -(CH₂)_f-aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹⁴, R¹⁵, R¹⁶, R¹⁷ and R¹⁸ independently represent H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹³ represents C₁₋₆ alkyl, C₃₋₆ cycloalkyl, aryl or -(CH₂)_h-aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

R⁶ represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C₁₋₆ alkoxy, C₃₋₆ cycloalkyl, C₃₋₆ cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

R¹⁹ and R²⁰ independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R^{18a}, R²¹ and R²² independently represent C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

A represents a single bond, C₁₋₆ alkylene, -N(R²³)(CH₂)_j- or -(CH₂)_jC(H)(OR²³)(CH₂)_k- (in which latter three groups, the -(CH₂)_j- group is attached to

the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C₁₋₄ alkylene, -(CH₂)_mN(R²⁴)-, (CH₂)_mS(O)_n-, -(CH₂)_mO- (in which three latter groups, the -(CH₂)_m- group is attached to the carbon atom bearing D and R⁴), -C(O)N(R²⁴)- (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), N(R²⁴)C(O)O(CH₂)_m- or -N(R²⁴)(CH₂)_m- (in which latter two groups, the N(R²⁴) group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4;

n represents 0, 1 or 2;

R²³ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl or C(O)R²⁵

R²⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R²⁵ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het³ or -(CH₂)_p-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

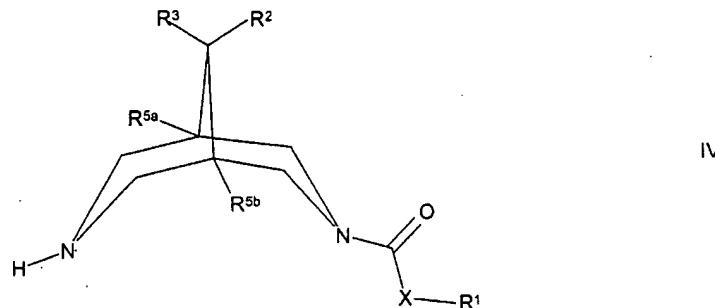
wherein alkyl groups that R², R³, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with which R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups that R⁶ may represent, and with which R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷,

R^{18} and R^{25} may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part cycloalkyl/acyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and $-(CH_2)-$ containing groups that R^2 and R^3 (together), R^7 , R^8 , R^{10} , R^{11} , R^{13} , R^{14} , R^{15} , R^{16} , R^{17} , R^{18} , R^{25} , A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and $-(CH_2)-$ containing chains may, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen,

provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH.

23 (previously presented). A compound of formula IV



wherein R¹ represents C₁₋₁₂ alkyl, C₃₋₁₂ cycloalkyl, -(CH₂)_a-aryl, or (CH₂)_aHet¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₃₋₄ cycloalkyl and/or C₁₋₄ alkoxy or C₃₋₄ cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

R² and R³ independently represent H, C₁₋₄ alkyl (optionally substituted with one or more nitro or cyano groups), C₃₋₄ cycloalkyl, OR⁷, N(R^{7a})R^{7b}, OC(O)R⁸ or together form -O-(CH₂)₂-O-, -(CH₂)₃-, -(CH₂)₄- or -(CH₂)₅-;

R⁷ and R⁸ independently represent H, C₁₋₆ alkyl, or -(CH₂)_b-aryl or (which latter two groups are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₁₋₄ alkoxy, and/or C₃₋₄ cycloalkyl);

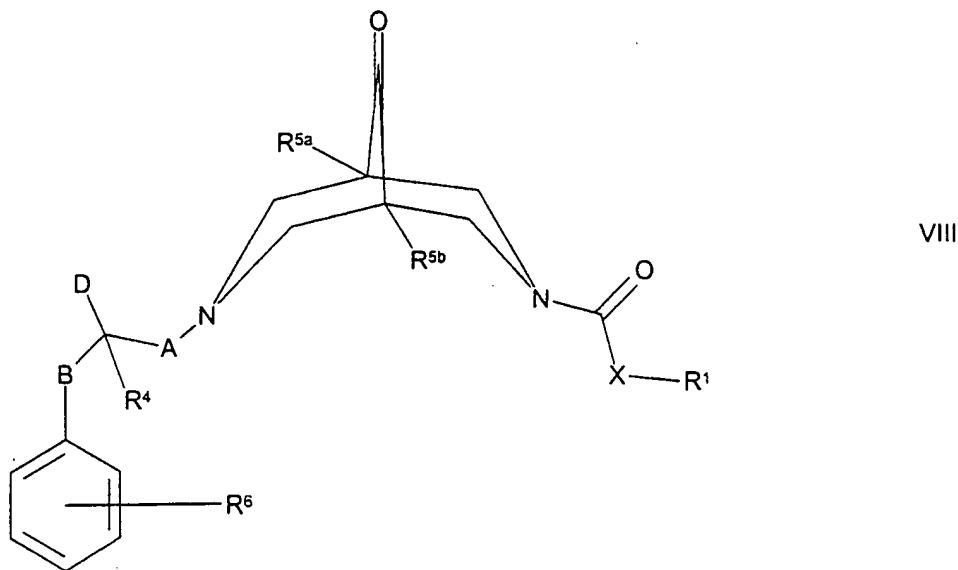
R^{7a} and R^{7b} independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

b represents 0, 1, 2, 3 or 4;

wherein alkyl groups that R¹, R², R³, R^{5a}, R^{5b}, R⁷, R^{7a}, R^{7b} and R⁸ may represent, and with which R¹, R⁷ and R⁸ may be substituted; and alkoxy groups and with which R¹, R⁷ and R⁸ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part cycloalkyl/acyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may , when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups;

provided that when R^{5a} and R^{5b} both represent H, then at least one of R² and R³ represents OR⁷, OC(O)R⁸ or C₁₋₄ alkyl, which alkyl group is substituted with one or more nitro or cyano groups.

24 (previously presented). A compound of formula VIII



wherein R¹ represents C₁₋₁₂ alkyl, C₃₋₁₂ cycloalkyl, -(CH₂)_a-aryl, or (CH₂)_aHet¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₃₋₄ cycloalkyl and/or C₁₋₄ alkoxy or C₃₋₄ cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH₂)_cN(R¹⁰)(R¹¹);

c represents 0, 1, 2, 3 or 4;

R¹⁰ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, -(CH₂)_d-aryl, -C(NH)NH₂, -S(O)₂R¹³, -[C(O)]_eN(R¹⁴)(R¹⁵), -C(O)R¹⁶ or -C(O)OR¹⁷;

e represents 1 or 2;

R¹¹ represents H, C₁₋₆ alkyl, -C(O)R¹⁸ or -(CH₂)_f-aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹⁴, R¹⁵, R¹⁶, R¹⁷ and R¹⁸ independently represent H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹³ represents C₁₋₆ alkyl, C₃₋₆ cycloalkyl, aryl or -(CH₂)_h-aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

R⁶ represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C₁₋₆ alkoxy, C₃₋₆ cycloalkyl, C₃₋₆ cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

R¹⁹ and R²⁰ independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R^{18a}, R²¹ and R²² independently represent C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

A represents a single bond, C₁₋₆ alkylene, -N(R²³)(CH₂)_j-, -O(CH₂)_j- or -(CH₂)_jC(H)(OR²³)(CH₂)_k- (in which latter three groups, the -(CH₂)_j- group is attached to the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C₁₋₄ alkylene, -(CH₂)_mN(R²⁴)-, (CH₂)_mS(O)_n-, -(CH₂)_mO- (in which three latter groups, the -(CH₂)_m- group is attached to the carbon atom bearing D and R⁴), -C(O)N(R²⁴)- (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), N(R²⁴)C(O)O(CH₂)_m- or -N(R²⁴)(CH₂)_m- (in which latter two groups, the N(R²⁴) group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4;

n represents 0, 1 or 2;

R²³ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl or C(O)R²⁵

R²⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R²⁵ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het³ or -(CH₂)_p-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

p represents 0, 1, 2, 3 or 4;

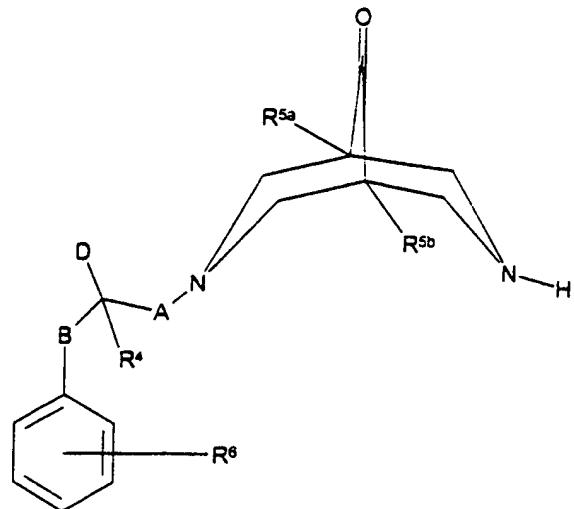
wherein alkyl groups that R¹, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with

which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups that R⁶ may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part cycloalkyl/acyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may , when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and -(CH₂)- containing groups that R¹, R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and -(CH₂)- containing chains may , when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen,

provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH.

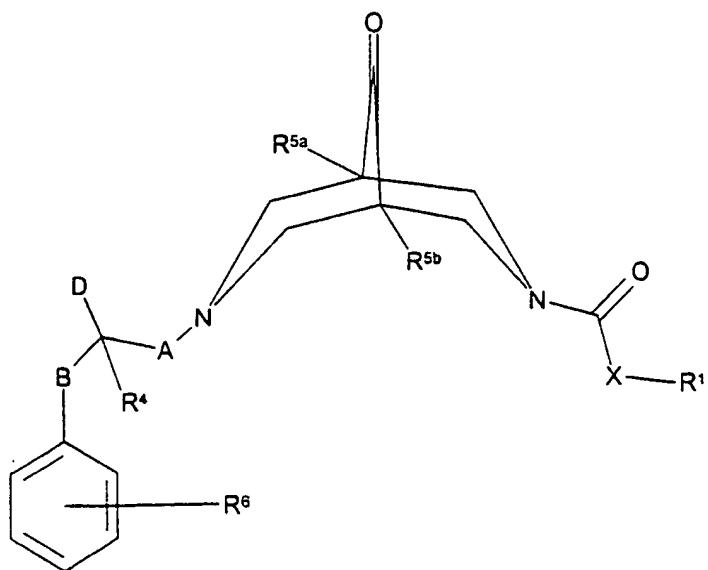
25 (previously presented). A compound of formula XVII,



XVII

wherein R⁴, R^{5a}, R^{5b}, R⁶, A, B and D are as defined in Claim 1, provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH.

26 (previously presented). A process for the preparation of a compound of formula VIII,



VIII

wherein R¹ represents C₁₋₁₂ alkyl, C₃₋₁₂ cycloalkyl, -(CH₂)_a-aryl, or (CH₂)_aHet¹ (all of which are optionally substituted by one or more substituents selected from -OH, halo, cyano, nitro, C₁₋₄ alkyl, C₃₋₄ cycloalkyl and/or C₁₋₄ alkoxy or C₃₋₄ cycloalkoxy);

a represents 0, 1, 2, 3, or 4;

Het¹ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

X represents O or S;

R^{5a} and R^{5b} independently represent H, C₁₋₃ alkyl or C₃ cycloalkoxy;

R⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

D represents H, -OH, or -(CH₂)_cN(R¹⁰)(R¹¹);

c represents 0, 1, 2, 3 or 4;

R¹⁰ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, -(CH₂)_d-aryl, -C(NH)NH₂, -S(O)₂R¹³, -[C(O)]_eN(R¹⁴)(R¹⁵), -C(O)R¹⁶ or -C(O)OR¹⁷;

e represents 1 or 2;

R¹¹ represents H, C₁₋₆ alkyl, -C(O)R¹⁸ or -(CH₂)_f-aryl (which latter group is optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹⁴, R¹⁵, R¹⁶, R¹⁷ and R¹⁸ independently represent H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het² or -(CH₂)_g-aryl (which latter three groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

R¹³ represents C₁₋₆ alkyl, C₃₋₆ cycloalkyl, aryl or -(CH₂)_h-aryl (all of which are all optionally substituted by one or more substituents chosen from halo, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

d, f, g and h independently represent 0, 1, 2, 3 or 4;

Het² represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

R⁶ represents one or more optional substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl (optionally terminated by -N(H)C(O)OR^{18a}), C₁₋₆ alkoxy, C₃₋₆ cycloalkyl, C₃₋₆ cycloalkoxy, -C(O)N(H)R¹⁹, -NHC(O)N(H)R²⁰, -N(H)S(O)₂R²¹ and/or -OS(O)₂R²²;

R¹⁹ and R²⁰ independently represent H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R^{18a}, R²¹ and R²² independently represent C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

A represents a single bond, C₁₋₆ alkylene, -N(R²³)(CH₂)_j- or -(CH₂)_jC(H)(OR²³)(CH₂)_k- (in which latter three groups, the -(CH₂)_j- group is attached to the bispidine nitrogen atom, and which latter four groups are all optionally substituted by one or more OH groups);

B represents a single bond, C₁₋₄ alkylene, -(CH₂)_mN(R²⁴)-, (CH₂)_mS(O)_n-, -(CH₂)_mO- (in which three latter groups, the -(CH₂)_m- group is attached to the carbon atom bearing D and R⁴), -C(O)N(R²⁴)- (in which latter group, the -C(O)- group is attached to the carbon atom bearing D and R⁴), N(R²⁴)C(O)O(CH₂)_m- or -N(R²⁴)(CH₂)_m- (in which latter two groups, the N(R²⁴) group is attached to the carbon atom bearing D and R⁴);

j, k and m independently represent 0, 1, 2, 3 or 4;

n represents 0, 1 or 2;

R²³ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl or C(O)R²⁵

R²⁴ represents H, C₁₋₆ alkyl or C₃₋₆ cycloalkyl;

R²⁵ represents H, C₁₋₆ alkyl, C₃₋₆ cycloalkyl, Het³ or -(CH₂)_p-aryl (which latter two groups are optionally substituted by one or more substituents selected from -OH, cyano, halo, amino, nitro, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl and/or C₃₋₆ cycloalkoxy);

Het³ represents a five to ten-membered heterocyclic ring containing one or more heteroatoms selected from oxygen, nitrogen and/or sulfur, and which also optionally includes one or more =O substituents;

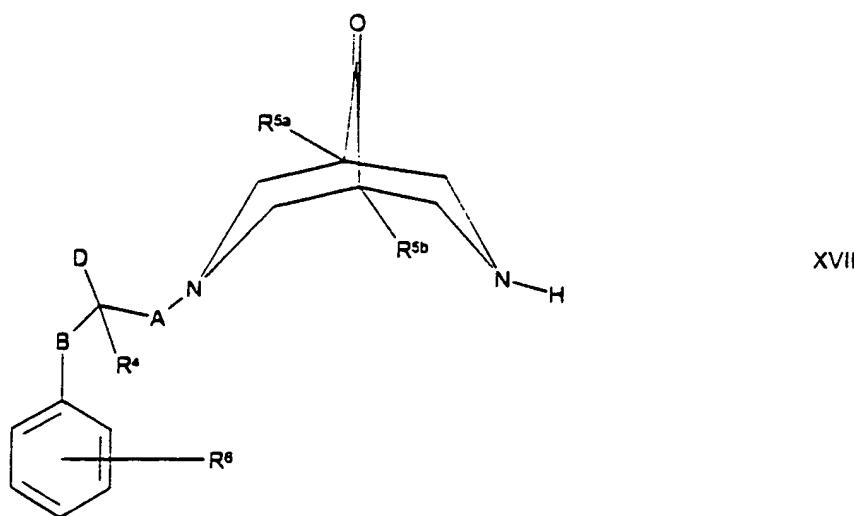
p represents 0, 1, 2, 3 or 4;

wherein alkyl groups that R¹, R⁴, R^{5a}, R^{5b}, R⁶, R⁷, R^{7a}, R^{7b}, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R^{18a}, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵ and D may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted; and alkoxy groups that R⁶ may represent, and with which R¹, R⁷, R⁸, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R²⁵ may be substituted, may be linear or, when there is a sufficient number (i.e. three) of carbon atoms, be branched and/or cycloalkyl or cycloalkoxy with carbon ranges as defined above, and wherein, when there is a sufficient number (i.e. four) of carbon atoms, such alkyl and alkoxy groups may also be part cycloalkylacyclic or cycloalkoxy/acyclic with carbon ranges as defined above, and wherein such alkyl and alkoxy groups may, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen and/or substituted by one or more fluoro groups; and

wherein alkylene groups that A and B may represent, and -(CH₂)- containing groups that R¹, R⁷, R⁸, R¹⁰, R¹¹, R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R²⁵, A, B and D may include, may be linear or, when there is a sufficient number (i.e. two) of carbon atoms, be branched, and wherein such alkylene groups and -(CH₂)- containing chains may, when there is a sufficient number (i.e. two) of carbon atoms, be unsaturated and/or interrupted by oxygen,

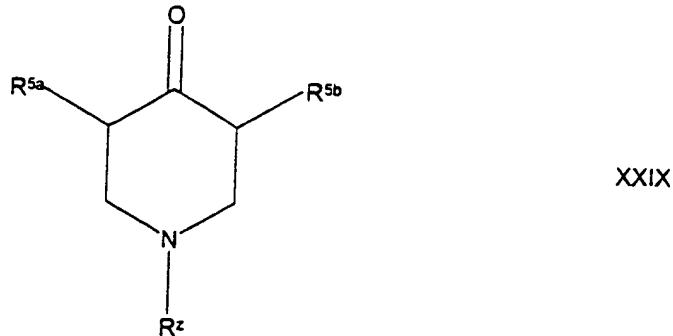
provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH, or

a compound of formula XVII,



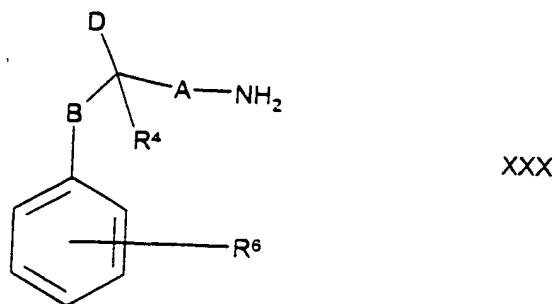
wherein R⁴, R^{5a}, R^{5b}, R⁶, A, B and D are as defined in Claim 1, provided that when R^{5a} and R^{5b} both represent H, then D does not represent H or OH,

which comprises reaction of a compound of formula XXIX,



wherein R^Z represents H or -C(O)XR¹ and R¹, R^{5a}, R^{5b} and X are as defined in

Claim 1 with a compound of formula XXX,



wherein R⁴, R⁶, A, B and D are as defined in Claim 1, in the presence of a formaldehyde.

27 (previously presented). A method as claimed in Claim 20, wherein the arrhythmia is an atrial or a ventricular arrhythmia.